Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

These amendments introduce no new matter and support for the amendment is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

Listing of Claims:

Claims 1 to 25 (Cancelled)

26. (Currently amended) A composition, comprising:

a population of nanocrystals characterized by an excitation spectrum and an emission spectrum, wherein the emission spectrum and at least a portion of the excitation spectrum are in the nonvisible range;

wherein the population of nanocrystals comprises a mixture of two or more subsets of nanocrystals, the subsets characterized by different excitation wavelengths, and

wherein the emissions of the population comprise different wavelengths or different wavelength intensities when alternately excited with the different excitation wavelengths~~; and,~~

~~wherein the population of nanocrystals are disposed in or linked to an adherent matrix~~.

27. (Original) The composition of claim **26**, wherein the nanocrystals comprise: a semiconductor, a nanodot, a nanorod, a nanowire, a nanocrystal, a branched nanorod, a coated nanocrystal, a passivated nanocrystal, or a derivitized nanocrystal.

28. (Original) The composition of claim **26**, wherein the nanocrystals further comprise a diameter ranging from about 1000 nm to about 0.1 nm.

29. (Original) The composition of claim **28**, wherein the nanocrystals further comprise a diameter ranging from about 50 nm to about 15 nm.

30. (Previously presented) The composition of claim **27**, wherein the derivitized nanocrystal comprises a linking agent selected from the group consisting of a substituted silane, a diacetylene, an acrylate, an acrylamide, vinyl, styryl, silicon oxide, boron oxide, phosphorus oxide, N-(3-aminopropyl)3-mercapto-benzamide, 3-aminopropyl-trimethoxysilane, 3-mercaptopropyl-trimethoxysilane, 3-maleimidopropyl-trimethoxysilane, 3-hydrazidopropyl-trimethoxysilane, a hydroxysuccinimide, a maleimide, a haloacetyl, a pyridyl disulfide, a hydrazine, and ethyldiethylamino propylcarbodiimide.

31. (Original) The composition of claim **27**, wherein coated nanocrystals comprise an inner core, and a coating layer of semiconductor comprising a band gap greater than that of the core.

32. (Original) The composition of claim **31**, wherein the nanocrystals comprise AlAs, AlN, AlP, AlSb CdO, CdS, CdSe, CdTe, GaAs, GaN, GaP, GaAs, GaSb, HgO, HgS, HgSe, HgTe, InAs, InN, InP, InSb, MgS, MgSe, ZnO, ZnS, ZnSe, or ZnTe.

33. (Previously presented) The composition of claim **31**, wherein the coating layer comprises ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, GaN, GaP, HgS, HgSe, HgTe, GaAs, GaSb, InP, InAs, InSb, or AlSb.

34. (Previously presented) The composition of claim **26**, wherein the population of nanocrystals comprises two or more subsets of nanocrystals, the subsets characterized by different light emission wavelengths.

35. (Original) The composition of claim **26**, wherein a subset of the population of nanocrystals emits light with a spectral width from less than about 25 nm to about 30 nm.

36. (Original) The composition of claim **26**, wherein the nanocrystals are manufactured by colloidal synthesis, precipitation, monolayer self assembly, photolithography, VLS growth, gas-phase nucleation and growth, solution-phase nucleation and growth, or vapor deposition.

37. (Original) The composition of claim **26**, wherein the excitation spectrum comprises ultraviolet, visible, or infrared wavelengths.

38. (Cancelled)

39. (Cancelled)

40. (Original) The composition of claim **26**, wherein the emission spectrum comprises ultraviolet or infrared wavelengths.

41. (Previously presented) The composition of claim **26**, wherein a subset of the nanocrystals comprises a predetermined intensity of emission as a function of a wavelength of light.

42. (Original) The composition of claim **41**, wherein the intensity is predetermined by varying a concentration of a nanocrystal constituent, the presence of an overcoating, or by varying representation of the nanocrystal subset.

43. (Cancelled)

44. (Previously presented) The composition of claim **26**, wherein the population of nanocrystals are characterized by a predetermined excitation spectrum or emission spectrum.

45. (Previously presented) The composition of claim **44**, wherein the spectrum is predetermined by varying a size of a nanocrystal, a constituent semiconductor, a size-distribution of the nanocrystals, a composition of a nanocrystal, a polarization of a nanocrystal, or a concentration of a nanocrystal constituent.

46. (Cancelled)

47. (Original) The composition of claim **26**, wherein the composition is excitable or detectable through a barrier.

48. (Original) The composition of claim **47**, wherein the barrier comprises living tissue, organic tissue, vegetation, animals, smoke, screens, dust, plastics, clouds, rain, water, a fabric, a material that transmits nonvisible light, or visibly obscured lines of sight.

Claims 49 to 59. (Cancelled)

60. (Previously presented) The composition of claim **26**, wherein the population of nanocrystals is linked to an adherent matrix, which adherent matrix comprises an affinity molecule or an antibody.

61. (Previously presented) An object tagged with the composition of claim **26**.

62. (New) The composition of claim **26**, wherein the population of nanocrystals are disposed in or linked to an adherent matrix.

63. (New) The composition of claim **62**, wherein the adherent matrix comprises a polymer, a penetrant, a solid support, a glass, a crystal, an organic material, an inorganic material, a liquid, tape, a fiber, a patch, a capsule, a powder, a decal, a pin, a clip, a label, ink, or an adhesive.